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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,557	06/19/2006	Kenichi Motoyama	292358US0PCT	9829

22850 7590 09/04/2009

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EXAMINER	
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ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
09/04/2009	ELECTRONIC

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/583,557
Filing Date: June 19, 2006
Appellant(s): MOTOYAMA ET AL.

Richard Treanor
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 7/14/09 appealing from the Office action mailed 1/14/09.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,800,926	Nogami et al.	9-1998
6,800,330	Hayashi et al.	10-2004

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-6 and 16-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nogami et al. (US Pat. 5,800,926), in view of Hayashi et al. (US Pat. 6,800,330)

The coating solutions of examples 3 and 4 of Nogami et al. and the coated films of example 6 and Table 1 satisfy all of the limitations of the instant claims with the exception that instead of ureidoalkyltrialkoxysilane [which represents formula (3) of component (C)] as required by the instant claims, Nogami et al. employs an aminopropyltrialkoxysilane (example 3).

In example 3, Nogami et al. employs 0.045 mol of tetraethylorthosilicate [TEOS, which satisfies compound (A) of the instant claims]; 0.0132 mol of tridecafluorooctyltrimethoxysilane [which satisfies compound (B) of the instant claims]; 0.0034 mol of aminopropyltrimethoxysilane, ethanol [which satisfies alcohol (D) of the instant claims] and oxalic acid [which is component (E) of the instant claims]. The ratio of compound (B) to compound (A) is calculated to be 0.29, which falls within the range of 0.05 to 0.043 of the instant claims. The ratio of the aminopropyltrimethoxysilane to compound (A) is calculated to be 0.074. The ratio of ethanol (D) to the total amount of alkoxy groups is calculated to be 8.3, which falls within the ratio of 0.5 to 100 of the instant claims, and the ratio of oxalic acid to the total amount of alkoxy groups is calculated to be 0.72, which falls within the range of 0.2 to 2 of the instant claims. The coating solutions were heated according to that taught at 2:58-64, which satisfies the limitations of the instant claims. The resulting polysiloxane coating solution (L_3) was dried at 80 °C then heated to 100 °C, which satisfies the limitations of the instant claims.

Example 4 of Nogami et al. teaches the addition of a silica sol to the coating fluid which satisfies the limitations of the instant claims.

Nogami et al. employs an aminoalkylalkoxysilane (specifically aminopropyltrimethoxysilane) and not an ureidoalkyltrialkoxysilane as required by component (C) of the instant claims. However, aminopropyltrimethoxysilane and ureidopropyltrimethoxysilane (which is a ureidoalkyltrialkoxysilane as required by the instant claims) are art recognized equivalents as taught by Hayashi et al. (14:66-15-25). Nogami et al. and Hayashi et al. are combinable because they are from the same field of endeavor, namely, polysiloxane films prepared via hydrolysis and condensation of alkoxysilane precursors. It is *prima facie* obvious to substitute equivalents, motivated by the reasonable expectation that the respective species will behave in a comparable manner or give comparable results in comparable circumstances. *In re Ruff* 118 USPQ 340 (CCPA 1958). See MPEP 2144.06. The express suggestion to substitute one equivalent for another need not be present to render the substitution obvious. *In re Font*, 213 USPQ 532.

Taken together, Nogami et al. in view of Hayashi et al. collectively teaches a process for preparing a coating fluid according to instant claims 1-3; a process for forming a coating film according to instant claims 4-6 and 16; a coating film which satisfies the physical properties of instant claims 17-19; a process for preparing a coating film which satisfies the physical properties of instant claims 20-23; and a coating film which satisfies the physical properties of instant claims 24-26. While Nogami et al. in view of Hayashi et al. do not explicitly teach coated films which satisfy the physical properties of the instant claims, a chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical

structure, the properties applicant discloses and/or claims are necessarily present. *In re Spada*, 911 F.2d 705, 15 USPQ2d 1655, (Fed. Cir. 1990). See also *In re Best*, 562 F.2d 1252, 195 USPQ 430, (CCPA 1977). "Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established."

(10) Response to Argument

Appellants disagree with the examiners statement that Nogami et al. in view of Hayashi et al. collectively teaches a process for preparing a coating fluid according to instant claims 1-3; a process for forming a coating film according to instant claims 4-6 and 16; a coating film which satisfies the physical properties of instant claims 17-19; a process for preparing a coating film which satisfies the physical properties of instant claims 20-23; and a coating film which satisfies the physical properties of instant claims 24-26. Appellants argue that the processes taught in Nogami et al. and Hayashi et al. are different. Specifically, Appellants argue that Hayashi et al. teaches preparing a silica-based film which relies on hydrolysis and condensation of alkoxysilanes in the presence of water and a basic catalyst, while Nogami et al. teaches preparing polysiloxane films which are prepared by hydrolysis with oxalic acid (an acidic catalyst) without the addition of water. Appellants further argue that Nogami et al. teaches product films of low refractive index while Hayashi et al. results in films of high refractive index. While Nogami et al. does teach preparing low index of refraction films, Hayashi et al. is silent regarding the refractive indices of the prepared films. Therefore, this statement made by Appellants appears to be mere allegation. Nevertheless, the Examiner does recognize the differences between the

overall processes taught by Nogami et al. and Hayashi et al. Hayashi et al., the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

In the instant case, Hayashi et al. teaches that aminopropyltrimethoxysilane and ureidopropyltrimethoxysilane serve the role of a silane coupling agent. Silane coupling agents are organo-functional silanes with the ability to bond organic polymer systems to inorganic substrates, in other words silane coupling agents promote the adhesion between organic and inorganic components. Nogami et al. teaches that a silane modifier [component (E) of Nogami et al., which includes aminopropyltri(m)ethoxysilane] may be added for the purpose of lowering the temperature of curing and to improve the adhesion of the coating film to the substrate. Thus, Nogami et al. and Hayashi et al. each teach that the addition of aminopropyltri(m)ethoxysilane serves to improve the adhesion of the coating film to the substrate. It is these combined teachings which would suggest to a person having ordinary skill in the art that substitution of compound (C) of the instant claims for aminopropyltri(m)ethoxysilane as taught by Nogami et al. would yield a functionally equivalent product.

Further, Nogami et al. and Hayashi et al. both teach the preparation of cured films prepared from hydrolyzable silanes. While Nogami et al. and Hayashi et al. employ different process steps, both references teach applying the silane-based compositions to silicon substrates followed by thermal cure. The result in both cases is a cured silica-based film which displays

excellent water repellency and which may serve as protective films. Any silane coupling agents would be expected to function in the same manner according to both Nogami et al. and Hayashi et al. As a result it is believed the Nogami et al. and Hayashi et al. are properly combinable and may be used to establish functional equivalency between the claimed ureidoalkyltrialkoxysilanes and the aminopropyltri(m)ethoxysilanes as taught by Nogami et al.

Appellants further argue that the instant specification shows that when employing compound (C) as claimed, the compositions display low refractive index and improved hardness of the coated and cured film. Appellants argue that the working examples demonstrate this while the comparative examples [which do not employ component (C)], do not. While the data shown by Appellant in their instant specification may show a difference in the properties of the films when using ureidopropyltrimethoxysilane, such working examples do not clearly show unexpected results. Specifically, the data regarding improved hardness (i.e., scratch resistance) shown is semi-quantitative. Further, as an example, coating fluid 2, which is prepared according to Applicant's invention and utilizes ureidopropyltriethoxysilane, does not appear to be substantially different than the comparative examples in its abrasion resistance. While this may or may not be attributed to the different curing temperature between coating fluid 2 and the comparative examples, the data presented in the instant specification is not sufficient to show that the aminopropyltrimethoxysilane and ureidopropyltrimethoxysilane are not functionally equivalent.

Last, the Examiner had suggested to Appellants that repeating example 3 of Nogami et al. with the only difference being the substitution of the aminopropyltrimethoxysilane with ureidopropyltriethoxysilane and showing the resulting differences as it relates to scratch

resistance would be sufficient to overcome the instant rejections. That is, Appellants should unequivocally show the alleged non-equivalency between compound (C) as claimed, and aminopropyltrimethoxysilane as taught by Nogami et al. Appellants have not provided this rather straight-forward experiment in an attempt to overcome the prior art rejections of record.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Robert Loewe/

Examiner, Art Unit 1796

Conferees:

/Randy Gulakowski/

Supervisory Patent Examiner, Art Unit 1796

/Anthony McFarlane/